

~~a second operable portion connected to said second ink container, said second operable portion having a second mark indicative of a second color of ink, corresponding to a second mark on said ink holder.~~

*32/ cancelled.*

~~149. An ink jet recording apparatus, comprising:  
a reciprocally-movable carriage;  
a holder having an integral ink jet head, said holder being detachably mountable to said carriage; and  
plural ink containers, each detachably mountable to said holder by engagement and disengagement between an engaging portion and a latching claw of each of said ink containers, which have different color inks.--~~

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REMARKS

Claims 1 and 43 to 149 are in the application, with Claim 1 having been amended and Claims 43 to 149 having been added. Claims 1, 43, 58, 73, 87, 102, 116, 131, 134, and 147 to 149 are the independent claims herein. Reconsideration and further examination are respectfully requested.

Initially, regarding a formal matter, Applicants respectfully point out that Claims 2 through 42 received an action on the merits even though those claims were cancelled in the Request For Continuation/Division Application filed February 7, 1997. However, new Claims 109 to 149 correspond to cancelled Claims 2 to 42, amended so as to improve

readability. The relationship between cancelled Claims 2 to 42 and new Claims 109 to 149 is as follows:

<u>Cancelled</u>	<u>New</u>
2	109
3	110
4	111
5	112
6	113
7	114
8	115
9	116
10	117
11	118
12	119
13	120
14	121
15	122
16	123
17	124
18	125
19	126
20	127
21	128
22	129
23	130
24	131
25	132
26	133
27	134
28	135
29	136
30	137
31	138
32	139
33	140
34	141
35	142
36	143
37	144
38	145
39	146
40	147
41	148
42	149

In view of the foregoing, the rejections of Claims 2 through 42 will be discussed below with respect to corresponding new Claims 109 to 149.

Regarding another formal matter, it was said in the Office Action that the application was filed with informal drawings. However, the application was filed with formal drawings, as indicated on both the Request For Continuation/ Division Application and the receipt postcard. Approval of the formal drawings is respectfully requested.

The requirement for a substitute specification is noted and is respectfully traversed. As correctly cited in the Office Action, the only authority by which a substitute specification may be required is set out at 37 C.F.R. § 1.125, which allows for a substitute specification "[i]f the number or nature of the amendments or the legibility of the application papers renders it difficult to consider the case, or to arrange the papers for printing or copying ...". Here, the majority of amendments in the specification relate to figure reference numerals, for example changing "Figure 39" to "--Figure 39a-b--". While other amendments to the specification have been made, it is not believed that such amendments would "render it difficult to consider the case", or "render it difficult to arrange the papers for printing or copying".

Indeed, the same changes to the specification were made to parent application No. 08/518,730. That application

has now issued as U.S. Patent No. 5,619,237, without any apparent difficulties in printing or copying.

Moreover, in the present case, Applicants respectfully submit that the number of changes is relatively small compared to the disproportionate effort that would be required in order to prepare a substitute specification. In this regard, the application is not on word processing equipment, and the requirement for a substitute specification would therefore entail retyping of 116 pages of specification, which is not believed to be necessary in this case. Accordingly, withdrawal of the requirement for a substitute specification is respectfully requested.

Claims 1 to 8 and 35 to 39, which correspond to pending Claims 1, 109 to 115 and 142 to 146, were rejected for alleged indefiniteness under 35 U.S.C. § 112, second paragraph. Claim 1 has been amended so as to address the Examiner's concerns, except for the rejection based on the recitation of the term "ambience". In more detail, in the Office Action, it was said that "it is unclear as to what 'ambience' refers to." Applicants do not see there to be anything unclear about the term "ambience". For example, as used in the application and as defined in Webster's Third New International Dictionary (1986), ambience is a surrounding or pervading atmosphere or the environment. Accordingly, as there is nothing unclear about the term "ambience",

withdrawal of the § 112 rejection made on the basis of this term is respectfully requested.

Claims 1 to 8 and 35 to 39, which correspond to pending Claims 1, 109 to 115 and 142 to 146, were rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,448,274 (Hirabayashi) in view of U.S. Patent No. 5,619,239 (Kotaki). This rejection is respectfully traversed.

The present invention in one aspect concerns an ink container for containing ink to be supplied to an ink jet head to which the ink container is detachably mountable. In conventional tanks of this type, the ink tank is mounted to the ink jet head by a lever or the like disposed on a carriage to which the ink jet head is attached. However, a lever disposed on a carriage is sometimes difficult to reach and to operate.

The present invention addresses the foregoing difficulty by providing a latching lever on the ink container. As a result of this arrangement, the lever tends to be more easily operated than in conventional arrangements.

Accordingly, the present invention as recited by Claim 1 concerns an ink container for containing ink to be supplied to an ink jet head to which the ink container is detachably mountable. The container includes an ink supply port for supplying the ink to the ink jet head, an air vent for fluid communication with ambience, and a claw-like projection provided on a first side of the ink container.

The ink container also includes a latching lever provided on a second side opposite from the first side, the latching lever being resiliently supported on the ink container and having a latching claw.

The applied art, alone or in combination, is not seen to disclose or to suggest the foregoing features of Claim 1, at least with respect to a latching lever provided on a side of and resiliently supported on an ink container.

In more detail, Hirabayashi discloses an ink jet recording apparatus than includes a pressing mechanism such as latching lever 103a that presses an end of an ink container and that is effective to mount the ink container on a carriage. In the Office Action, this latching lever was equated with the claimed latching lever. However, as disclosed at column 6, line 20, and as shown in Figures 1, 3 and 4 of Hirabayashi, latching lever 103a is not part of the ink container. Rather, Hirabayashi's latching lever 103a is part of carriage HC. Thus, Hirabayashi is not seen to disclose or to suggest a latching lever provided on a side of and resiliently supported on an ink container, as recited by Claim 1.

Kotaki, which was cited for disclosing an ink container having a top side which has a stepped portion, is seen to add nothing to remedy the foregoing deficiencies of Hirabayashi. Kotaki discloses an ink container that engages a camming shoe located at a back top side of a carriage.

This camming shoe is not located on the ink container and therefore is not seen to be equivalent to the latching lever of Claim 1, which is provided on a side of and resiliently supported on an ink container.

In view of the foregoing amendments and remarks, Claim 1 is believed to be allowable.

Claims 9 to 34 and 40 to 42, which correspond to pending Claims 116 to 141 and 147 to 149, were rejected under 35 U.S.C. § 103(a) over Hirabayashi in view of U.S. Patent No. 5,245,361 (Kashimura). While these claims have been amended and rewritten so as to improve readability, this § 103(a) rejection is nonetheless traversed.

The invention as recited by Claim 116 concerns an ink container holder that is for holding an ink container and that is detachably mountable to a reciprocally-movable carriage of an ink jet apparatus. When the ink container runs out of ink, the combination of the ink container holder and the ink container can be detached from the carriage. Then, the ink container can be replaced in the ink container holder, outside of the carriage. Replacing the ink container outside of the carriage tends to be less troublesome than replacing the ink container within the carriage. In particular, if the ink container is still in the carriage, parts of the carriage and the ink jet apparatus obstruct the replacement of the ink container. In addition, breaking a connection between an ink container and an ink receiving tube

within the carriage can result in ink splashing into the inside of the carriage, and this ink can later foul recording media. These problems are less likely to be encountered when the ink container is replaced in the ink container holder outside of the carriage.

Accordingly, Claim 116 recites an ink container holder for holding an ink container for containing ink to be supplied to an ink jet head and being detachably mountable to a reciprocally-movable carriage. The ink container holder includes an opening for receiving the ink container, and an ink receiving tube for receiving the ink from the ink container. The ink container holder also includes a first internal wall having a first engaging hole for engagement with a claw-like projection of the ink container, and a second internal wall having a second engaging hole for engagement with a latching claw of a latching lever of the ink container.

The applied art, alone or in combination, is not seen to disclose or to suggest the foregoing features of Claim 116, at least with respect to an ink container holder for holding an ink container for containing ink to be supplied to an ink jet head and being detachably mountable to a reciprocally-movable carriage.

In more detail, the ink jet recording apparatus disclosed in Hirabayashi includes an ink container mounted on a carriage and a recording head connected to the ink



container. However, an ink container mounted on a carriage is entirely different from an ink container holder that holds an ink container and that is detachably mounted on a carriage, as recited by Claim 116. In particular, in order to replace the ink container in Hirabayashi, it is necessary to remove the ink container itself from the carriage in the ink jet recording apparatus. As discussed above, this operation can result in ink splashing into the carriage and is in contrast to the invention, where the ink container can be replaced in the ink container holder outside of the carriage. Thus, the arrangement in Hirabayashi is entirely different from the ink container holder of Claim 116.

Kashimura is seen to add nothing to remedy the foregoing deficiencies of Hirabayashi. In more detail, Kashimura discloses an ink jet recording device having an ink tank integrated type recording head and a carriage for mounting the head thereon. The ink tank and head are mounted on the carriage in Kashimura. As discussed above, an ink tank mounted on a carriage is entirely different from the arrangement recited by Claim 116, wherein the ink tank is held by a holder which is detachably mountable on a carriage.

In this regard, the Office Action apparently drew a correspondence between recording head 10 with fitting portion 20b and the claimed ink container holder. Applicants respectfully point out, however, that as recited by Kashimura at column 5, line 57, head 10 is integral with the ink tank.

Thus, head 10 cannot hold the ink tank. In fact, nothing in Kashimura holds an ink tank while being detachably mountable to a carriage, as recited by Claim 116.

In view of the foregoing amendments and remarks, Claim 116 is believed to be allowable.

As recited by Claim 131, the present invention concerns an ink container holder for holding an ink container for containing ink to be supplied to an ink jet head with which the ink container is integral, the ink container holder detachably mountable to a carriage which is reciprocally-movable. The ink container holder includes a first operating portion for mounting and demounting the ink container to the ink container holder, and a second operating portion for mounting and demounting the ink container holder to the carriage. The first operating portion and the second operating portion are provided in a same side relative to a movement direction of the carriage.

The applied art, alone or in combination, is not seen to disclose or to suggest the foregoing features of Claim 131, at least with respect to an ink container holder for holding an ink container for containing ink to be supplied to an ink jet head and being detachably mountable to a reciprocally-movable carriage. Accordingly, Claim 131 also is believed to be allowable.

As recited by Claim 134, the present invention concerns a reciprocally-movable carriage for an ink jet

apparatus. The carriage includes a mounting portion for mounting an ink container holder. The carriage also includes a positioning portion, on a first side, for positioning the ink container, an electric contact for electric connection with head contacts of an ink jet head mounted to the ink container, and a guiding member, resiliently supported on a second side, for engagement with an engaging portion of the ink container holder.

The applied art, alone or in combination, is not seen to disclose or to suggest at least an ink container holder mountable on a carriage. It follows that the art also does not disclose or suggest a carriage on which such an ink container holder is mountable, as recited by Claim 134. Accordingly, Claim 134 is believed to be allowable.

In the Office Action, the features of Claims 40 to 42, which correspond to pending Claims 147 to 149, were nowhere identified in the applied art. Accordingly, these claims also are believed to be allowable.

Claims 43 to 108, of which Claims 43, 58, 73, 87 and 102 are independent, have been added and are believed to be drawn to allowable subject matter, as follows.

Claim 43 concerns a liquid container for an ink jet recording apparatus, capable of containing liquid to be used by an ink jet head, wherein the liquid container is detachably mountable to a holder having the ink jet head. The liquid container includes a main body for containing the

liquid and a supplying port for supplying the liquid to the recording head. The supplying port is disposed in a portion which takes a bottom position during operation. Also included are a first engaging portion, a second engaging portion, and a supporting member. The first engaging portion is provided on a side of the main body and is for engaging with a first locking portion of the holder. The second engaging portion is resiliently displaceable and is resiliently engageable with a second locking portion of the holder. The supporting member is for supporting the second engaging portion, provided on a side opposite from the side having the first engaging portion.

Claim 58 concerns a liquid container for an ink jet recording apparatus, capable of containing liquid to be used by an ink jet head, wherein the liquid container is detachably mountable to a holder having the ink jet head. The liquid container includes a main body for containing the liquid, and a supplying port for supplying the liquid to the recording head. The supplying port is disposed in a portion which takes a bottom position during operation. The liquid container also includes an air vent portion for fluid communication between inside of the main body and ambience, a first engaging portion, provided on a side of the main body, for engaging with a first locking portion of the holder, and a latch lever having a second engaging portion, provided on a side opposite from the side having the first engaging

portion. The second engaging portion is resiliently displaceable and is resiliently engageable with a second locking portion of the holder.

Claim 73 concerns a liquid container holder having an ink jet head, which is capable of holding a liquid container for containing ink to be used for recording. The holder is provided with an opening for receiving the liquid container and includes a tube, a first locking portion, and a second locking portion. The tube is for fluid communication with an ink supply port of the liquid container, provided at a portion taking a bottom position in operation. The first locking portion is engageable with a first engaging portion provided on one side of the liquid container. The second locking portion is resiliently displaceable and is resiliently engageable with a second engaging portion of a latch lever provided on a side of the liquid container opposite from the one side.

Claim 87 concerns a liquid container for an ink jet recording apparatus, capable of containing liquid to be used by an ink jet head. The liquid container is detachably mountable to a holder having the ink jet head. As recited by Claim 87, the liquid container includes a main body for containing the liquid, and a supplying port for supplying the liquid to the recording head, the supplying port being disposed in a portion which takes a bottom position during operation. The container also includes an air vent portion

for fluid communication between inside of the main body and ambience, a first engaging portion, and a latch lever. The first engaging portion is provided on a side of the main body and is for engaging with a first locking portion of the holder. The latch lever has a second engaging portion which is resiliently displaceably and is resiliently engageable with the second locking portion of the holder. The supplying port is disposed between the first engaging portion and the second engaging portion.

Claim 102 concerns a reciprocally-movable carriage for carrying an ink jet cartridge for effecting recording by ejecting ink onto a recording material. The carriage includes a positioning member for engagement with a first side of the ink jet cartridge to correctly position it, an electrode contact for transmitting an electric signal relating to ejection of the ink to the recording head, and a guiding member elastically supported at a position corresponding to an engaging portion provided on a second side of the ink jet cartridge opposite from the first side.

The features of these claims are not seen to be disclosed or reasonably suggested by the art of record. In particular, the art of record is not seen to relate to features such as a liquid container having a supporting member for supporting a second engaging portion, provided on a side opposite from a first engaging portion, as in Claim 43; a liquid container having a latch lever, as in Claims 58,

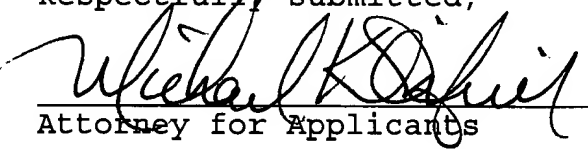
73 and 87; and a carriage having a guiding member elastically supported at a position corresponding to an engaging portion provided on a side opposite from a positioning member, as in Claim 102.

In view of the foregoing amendments and remarks, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Regarding the Information Disclosure Statement dated August 28, 1998, the Examiner is respectfully requested to initial and return a copy of the Form PTO-1449 attached thereto, so as to signify that the cited art has been made of record.

Applicants' undersigned attorney may be reached in our California office by telephone at (714) 540-8700. All correspondence should continue to be directed to our below listed address.

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